Chapter 16: Construction Impacts

A. INTRODUCTION

This chapter examines the potential construction impacts of the proposed project. This chapter summarizes the construction plan for the proposed project, including a description of the anticipated construction stages and activities, followed by a discussion of the types of impacts likely to occur during construction of the proposed development on the Brooklyn Bay Center site ("project site"). The assessment also describes methods that may be employed to minimize construction-related impacts.

As described below, the analysis concludes that the proposed actions would not result in substantial construction-related effects with respect to any of the analysis areas of concern. Therefore, no significant adverse impacts are expected to occur as a result of construction.

PRINCIPAL CONCLUSIONS

Construction activities associated with the proposed project are anticipated to last approximately 28 months. As with any new development, construction activities may be disruptive to the surrounding area. Construction of the proposed development also would have temporary effects in the areas listed below:

- *Hazardous Materials*. Construction activities for the proposed project could disturb hazardous materials and increase pathways for human exposure. The project sponsor has obtained approval from the New York State Department of Environmental Conservation (NYSDEC) of a Solid Waste Mitigation and Soil Management Plan and a Beneficial Use Determination (BUD), and the proposed project would include measures to ensure there would be no significant adverse impacts related to hazardous materials as a result of construction, including: conducting demolition activities in compliance with applicable requirements, including those relating to abatement of asbestos and lead-based paint; registering and removing (or close-in-place) any known or unexpectedly encountered underground storage tanks (USTs) and aboveground storage tanks (ASTs) along with any associated contaminated soil; installing and maintaining erosion and sedimentation control measures in accordance with a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion and Sediment Control Plan; and implementation of a Construction Health and Safety Plan; among other measures. These measures also include the preparation of a Site Management Plan and associated Restrictive Declaration (a legally enforceable recorded document) with NYSDEC. In addition, the New York City Department of Environmental Protection (NYCDEP) has required the applicant to enter into a NYCDEP restrictive declaration that is consistent with the NYSDEC measures. With these measures, no potential for significant adverse impacts related to hazardous materials would be expected to occur either during or following construction at the site.
- *Traffic and Parking*. The proposed project would generate trips from workers traveling to and from the site, as well as from the movement of goods and equipment. The estimated

average number of construction workers on site at any one time would vary depending on the phase of construction. Construction workers would travel primarily by private automobile. Given typical construction hours, worker trips would be concentrated in off-peak hours and would not represent a substantial increment during peak travel periods. Therefore, vehicle trips associated with construction would not be likely to have significant adverse impacts on surrounding streets. Truck movements would be spread throughout the day and would generally occur between the hours of 7:30 AM and 4:30 PM, depending on the period of construction. The following numbers of trucks (for materials delivery and removal of debris/scrap from construction operations) are anticipated during the various construction stages: 10 to 15 trips per day during demolition; 25 to 35 trips per day during excavation and foundation; 30 to 40 trips per day during structure and shell; and 25 to 35 trips per day during interior construction. Construction activities would result in the short-term temporary disruption of both traffic and pedestrian movements around the project sites. Construction staging is expected to be accommodated on-site. If required, approvals for any temporary sidewalk and curb lane closures during construction would be coordinated with New York City Department of Transportation's (NYCDOT) Office of Construction Management and Coordination to minimize potential impacts on pedestrian and vehicular circulation surrounding the site. Overall, construction of the proposed development is not expected to have extensive or long-term impacts on traffic or parking conditions in the surrounding area.

- *Air Quality*. The quantity of air pollutants emitted during the construction period would likely vary over time. Some level of air pollutants would be released into the atmosphere, but it is not expected that the construction activities would increase those pollutants by amounts that would be considered significant in ambient air.
- *Noise*. While noise from construction activities may be considered intrusive, potential increases in noise levels as a result of construction-related activities would be expected to occur for limited duration. Therefore, no long-term, significant adverse noise impacts on the adjacent noise-sensitive uses are expected from the proposed construction activities.

Although there would be localized, temporary disruptions, the analysis concludes that there would not be any potential for significant adverse impacts by the proposed project due to the construction period.

B. CONSTRUCTION STAGES AND ACTIVITIES

Construction of the building would generally involve five main stages, which would overlap at certain times: demolition, excavation and foundations, superstructure, core and shell, and interior construction and finishing. Various construction phases would overlap, such as work on interior construction taking place as the superstructure is being completed. The overall cumulative schedule for construction of the proposed project is anticipated to last approximately 28 months (or approximately 2.3 years). Each of the construction stages is described in more detail below.

DEMOLITION/SITE PREPARATION

Development of the proposed project would require the demolition of a two-story building and a one-story storage building on the project site. Demolition, site clearance, and site preparation (including any necessary soil remediation) are expected to last approximately 9 months. Demolition would commence with the abatement of any hazardous materials in the existing buildings, which would likely consist largely of asbestos-containing materials and lead-based

paint commonly found in the building materials of older structures. Demolition would involve the use of cranes, robotic demolition machines, jackhammers, loaders, and dump trucks. All demolition debris would be carted offsite for disposal in a licensed landfill. To protect the public during the demolition work, sidewalk bridges, netting, and appropriate protective enclosures would be installed along the perimeter of the site.

EXCAVATION AND FOUNDATION

Following demolition, construction of the project's foundation and below-grade elements would commence and is expected to last approximately 8 months (i.e., months 9 through 16). To minimize adverse effects from excavation activities, the project would implement a protection and monitoring program that would include:

- Hiring an independent engineer or testing agency to conduct vibration monitoring to ensure that excavation activities are done in conformance with applicable building codes;
- Surveying existing building foundations adjacent to the construction site to establish baseline conditions. Monitoring of structural movement would be conducted and compared against the baseline conditions to safeguard the integrity of nearby structures from construction-generated activities; and
- Protecting other adjacent buildings as necessary.

Foundation work would include site clearance, excavation, and pouring of concrete footings and foundation. Ready-mix concrete trucks would deliver concrete to the site and trucks would remove excavated material for off-site disposal in a licensed landfill. As described in Chapter 7, "Hazardous Materials," the project sponsor has obtained approval from NYSDEC of a Solid Waste Mitigation and Soil Management Plan and a BUD to reuse certain materials excavated from the western portion of the site to raise the grade on the eastern portion of the site in connection with the site redevelopment.

STRUCTURE AND SHELL

The structure and shell stage would include construction of the steel structure (including beams, columns, and slabs), façade (exterior walls and cladding), pre-cast parking garage, and roof of the proposed building. Installation of the buildings' mechanical, electrical, and plumbing systems would start during this stage and continue through the interior construction and finishing stage. These activities would require the use of cranes, derricks, exterior hoists, delivery trucks, and welding equipment.

Cranes would be used to lift steel, façade elements, large pieces of equipment, etc. All materials for the construction of the proposed development and all debris generated as part of the construction generally would be moved via lifts. Trucks would continue to deliver materials and carters would remove construction debris.

The total duration of the structure and shell stage of construction is expected to span 10 months (i.e., months 15 through 24), of which approximately 3 to 4 months would overlap with the interior construction stage.

INTERIOR CONSTRUCTION AND FINISHING

Installation of the building's mechanical, electrical, and plumbing systems would continue during this stage and include installation of heating, ventilation, and air conditioning (HVAC)

equipment and ductwork, installation of electric lines within the buildings, and interior installation of water supply and wastewater piping. Installation and checking of elevator and life safety systems would also take place at this time.

This stage would also include the construction of interior walls, installation of lighting fixtures, and interior finishes (flooring, painting, etc.). Interior construction of the proposed development is expected to last approximately 7 months (i.e., months 22 through 28), of which 3 to 4 months would overlap with the structure and shell stage.

CONSTRUCTION WORKERS AND DELIVERIES

The individual and overlapping activities projected for various stages of construction would result in construction workers and deliveries at the project site, which are described later in this chapter for the proposed project.

CONSTRUCTION HOURS

The permitted hours of construction regulated by the New York City Noise Code and Department of Buildings (NYCDOB) apply in all areas of the City and are reflected in the collective bargaining agreements with major construction trade unions. It is anticipated that the bulk of construction activities would take place Monday through Friday, during the regularly allowed hours of construction (7 AM to 6 PM), but that some overtime may be required to complete some time-sensitive tasks beyond the normal work day (e.g., cement pouring) on weekdays and that some construction activities could also occur on Saturdays.

In the event that overtime or Saturday work is required, appropriate work permits from NYCDOB would be obtained. For Saturday work, construction permit variances typically allow construction between 9 AM and 5 PM. For this work to occur, the variance must be filed for and approved in advance of off-hour activities commencing.

For any work occurring outside the regular weekday hours, an Alternative Noise Mitigation Plan permit would need to be obtained from the New York City Department of Environmental Protection (NYCDEP) in accordance with the revised New York City Noise Control Code, as per Section 24221 of the New York City Administrative Code (NYCAC). It is necessary to file this document with NYCDEP, and the approved plan must be accessible to inspectors. In accordance with Section 24221, any individual or entity performing construction work in the city shall adopt and implement an Alternative Noise Mitigation Plan for each construction site when any device or activity deviates from strict compliance with the noise mitigation rules as defined in Section 24219 (including work being performed outside the regularly allowed weekday construction hours). An Alternative Noise Mitigation Plan is also required when the construction devices being used on a site for any reason cannot strictly comply with the mitigation strategies and Best Management Practices defined in 15 RCNY Section 28102.

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

Absent the proposed actions, the existing bus parking facility will remain on the site, and no construction activities would occur.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

Construction of the proposed development may be disruptive to the surrounding area and, in particular, to the nearby residential and commercial uses during the construction period. The following analysis describes the overall temporary effects on land use, community facilities, historic and archaeological resources, hazardous materials, traffic and transportation, air quality, and noise.

LAND USE

Construction of the proposed building may cause some disruptions to activities in the surrounding area. Although total construction is anticipated to last approximately 18 to 20 months, these disruptions would be temporary in nature and would not occur for the entire duration. Construction would be similar to construction at other sites in the city and the hours of the construction would be regulated by NYCDOB. In general, construction would not alter surrounding land uses, although certain types of activities could be intrusive to adjacent uses. Other changes, such as the sidewalk closures, would also be apparent to people living and working in the surrounding area but the implementation of a construction management plan would minimize the effects of these closures.

COMMUNITY FACILITIES

Construction activities on the site would result in some interruptions to activities in the surrounding area and would include various lane and/or sidewalk closures for different stages of construction. However, any affect streets would be accessible to emergency vehicles and available for emergency access. Project coordination with both the New York City Police Department (NYPD) and the New York City Fire Department (FDNY) would ensure unimpeded emergency access during construction.

HISTORIC RESOURCES

There are no known architectural resources—properties listed on, or determined eligible for listing on, the State and National Registers of Historic Places (S/NR), National Historic Landmarks, New York City Landmarks and Historic Districts (NYCL), or properties pending such designation—on or within 400 feet of the project site. Furthermore, there are no properties on or within 30 feet of the project site that appear to meet the eligibility criteria for S/NR listing or for NYCL designation. In addition, in a letter dated April 14, 2008, the New York State Office of Parks, Recreation, and Historic Preservation [OPRHP]) determined that the proposed actions would have no effect on cultural resources on, or eligible for inclusion on, the National Register of Historic Places. In a comment letter dated April 23, 2008 (see **Appendix C**), the New York City Landmarks Preservation Commission (LPC) concluded that the project site has no archaeological significance. Therefore, there are no historic or archaeological resources within 400 feet of the project site that could be affected by in-ground disturbances or vibrations from construction of the proposed development, and no potential for significant adverse impacts on historic resources would occur with the proposed actions.

HAZARDOUS MATERIALS

Chapter 7, "Hazardous Materials," discusses the potential for adverse impacts during construction activities resulting from the presence of hazardous waste, petroleum storage tanks, asbestos-containing materials (ACMs), PCB-containing materials, and lead-based paint.

Construction activities for the proposed actions could disturb hazardous materials and increase pathways for human exposure. However, it is anticipated that impacts would be avoided by performing construction activities in accordance with a Solid Waste Mitigation and Soil Management Plan and a BUD, which would include the following measures:

- Conducting demolition of the existing buildings, building foundations, and other above-grade structures in compliance with applicable requirements, including those relating to abatement of asbestos and lead-based paint;
- Installing and maintaining erosion and sedimentation control measures in accordance with a Stormwater Pollution Prevention Plan and an Erosion and Sediment Control Plan;
- Following prescribed procedures for excavation of the western portion to the desired grade, processing the material to remove solid waste, and backfilling the remaining material;
- Following prescribed procedures for registering and removing (or closing-in-place) known and any unexpectedly encountered USTs and ASTs along with any associated contaminated soil;
- Following prescribed procedures for segregating, stockpiling, testing, transporting and disposing of contaminated soil encountered during excavation activities;
- Following prescribed procedures for importing material (soils in areas that will not be capped either by impervious structures such as building, or with concrete/asphalt pavement will be capped with clean fill meeting the 6 NYCRR Part 375 Unrestricted Use Site Cleanup Objectives (SCO); other imported soils will meet the Restricted Commercial Use SCOs);
- Implementing a Health and Safety Plan during all earthwork including requirements for worker training, personal protective equipment, and site and community air monitoring.
- Installing a vapor barrier in the new retail building with interior monitoring system for methane and hydrogen sulfide;
- Illustrating the locations and presenting requirements for groundwater monitoring; and
- Preparing a Site Management Plan and associated Restrictive Declaration (a legally enforceable recorded document) to ensure continued implementation of those engineering and institutional measures described above and also including: providing notice to future property owners of environmental conditions and development restrictions; inspecting and maintaining the site cover and monitoring systems; notifying the NYSDEC before certain types of ground-intrusive work; and reporting to NYSDEC.

In addition, the New York City Department of Environmental Protection (NYCDEP) has required the applicant to enter into a NYCDEP Restrictive Declaration that is consistent with the NYSDEC measures listed above.

With these measures, no potentially significant adverse impacts related to hazardous materials would be expected to occur either during or following construction at the site.

TRAFFIC AND TRANSPORTATION

The proposed actions would generate trips from workers traveling to and from the site, as well as from the movement of goods and equipment. The estimated average number of construction workers on site at any one time would vary, depending on the phase of construction, as follows:

- The demolition stage would require about 15 to 25 workers on site;

- The excavation and foundation work would require the labor of an average of 40 to 60 persons;
- Workers required for construction of the structure and shell would range from 100 to 150, depending on the tasks.
- Workers for the interior construction and finishing would range from 75 to 125.

Construction workers would travel primarily by private automobile. Given typical construction hours, worker trips would be concentrated in off-peak hours and would not represent a substantial increment during peak travel periods. Therefore, vehicle trips associated with construction would not be likely to have significant adverse impacts on surrounding streets.

Truck movements would be spread throughout the day and would generally occur between the hours of 7:30 AM and 4:30 PM, depending on the period of construction. Trucks would travel on designated truck routes, which include Cropsey Avenue, Bay Parkway, and 25th Avenue. All trucks would access the Shore Parkway service road from Bay Parkway and exit via the 26th Avenue underpass or the Cropsey Avenue interchange with Belt Parkway. The following numbers of trucks (for materials delivery and removal of debris/scrap from construction operations) are anticipated during the various construction stages:

- Demolition: 10 to 15 trips per day;
- Excavation and Foundation: 25 to 35 trips per day;
- Structure and Shell: 30 to 40 trips per day; and
- Interior construction: 25 to 35 trips per day.

In addition to the trips described above, an average of approximately 15 trucks per hour associated with the implementation of the Solid Waste Mitigation and Soil Management Plan are anticipated to travel to and from the project site for a duration of approximately 14 weeks during the excavation and foundation stage. It is assumed that all construction work would be done during one daily shift. However, if it becomes necessary to expedite an area of construction that is falling behind schedule, there could be an added second shift, subject to city approval.

Construction activities would result in the short-term temporary disruption of both traffic and pedestrian movements around the project sites. Construction staging is expected to be accommodated on-site. If required, approvals for any temporary sidewalk and curb lane closures during construction would be worked out in coordination with NYCDOT's Office of Construction Mitigation and Coordination to manage pedestrian and vehicular circulation surrounding the site.

AIR QUALITY

The principal air quality impact associated with construction activities is the generation of fugitive dust. Fugitive dust emissions from site-clearing operations can occur from excavation, hauling, dumping, spreading, grading, compaction, wind erosion, and traffic over unpaved areas. Actual quantities of emissions depend on the extent and nature of the clearing operations, the type of equipment employed, the physical characteristics of the underlying soil, the speed at which construction vehicles are operated, and the type of fugitive dust control methods employed. For these proposed development, demolition, excavation, and construction would be conducted with the care mandated by the site's proximity to active uses. Dust control measures—including watering of exposed areas and dust covers for trucks—would be implemented to ensure that Section 1402.2 9.11 of the New York City Air Pollution Control

Code regulating construction-related dust emissions is followed. As a result, no significant air quality impacts from fugitive dust emissions would be anticipated.

Construction vehicles would not result in any significant long term disruption of local traffic, so carbon monoxide levels would not be significantly affected. Emissions from diesel powered construction equipment would not be great enough to produce any significant local or regional impacts.

NOISE

Impacts on community noise levels during construction would include noise from the operation of construction equipment and noise from construction vehicles and delivery vehicles traveling to and from the site. The level of impact of these noise sources depends on the noise characteristics of the equipment and activities involved, the construction schedule, and the location of potentially sensitive noise receptors.

Noise and vibration levels at a given location depend on the type and quantity of construction equipment being operated, as well as the distance from the construction site. Typical noise levels of construction equipment expected to be employed during the construction process are shown in **Table 16-1**. Noise levels due to construction activities would vary widely, depending on the phase of construction—site clearing and excavations, foundation work, erection of structural steel, construction of exterior walls, etc.—and the specific tasks being undertaken.

Table 16-1
Construction Equipment Noise Emission Levels

Construction Equipment	Noise Level at 50 ft. (dBA)
Air Monitoring Equipment	70
Asphalt Paver	85*
Asphalt Roller	74
Backhoe	80
Bar Bender	80
Boom Trucks/MTL Deliveries	85
Bulldozer	82
Chain Saws	85
Cherry Picker 35-55 ton	85
Compactor	82
Compressors	75*
Concrete Pumps	82
Concrete/Grout Pumps	82
Concrete Trucks (10Cy)	85
Concrete Saw	90
Construction Hoist/Elevators	70
Crane—Demolition Attachment	85*
Crawler Service Crane (100T)	83
Diamond Saws	76
Drill Rigs	84
Drill Rigs 14"- 48" dia	85
Dump Trucks	88
Dumpster/Rubbish Removal (30Cy)	77*
Excavator .5 - 5 CY	85
Excavators	85
Excavators w/ Hoe Ram (Pneumatic)	85
Excavators/Backhoes	85
Front End Loader	80
Front End Loader 1- 3.5 CY	80

Table 16-1 (cont'd)
Construction Equipment Noise Emission Levels

Construction Equipment	Noise Level at 50 ft. (dBA)
Fuel Trucks	80
Generators	81
Generators (25 KVA)	81
Grader	85
Hand Tools/Hammers	70
Hoe Rams	85*
Hyd. Truck Crane 125-160 ton	83
Hydraulic Cranes -45t	83
Hydraulic Cranes -90t	83
Hydraulic Grippers	85
Hydraulic Lift Vehicle (Gasoline)	85
Impact Wrenches (Compressed Air)	85
Jack Hammers (90lbs. Compressed Air)	71*
Lift Booms/Scissor Lifts (Elect)	85
Loader	85
Manitowoc 999/2250	85
Pavement Milling/Reclaimer	85*
Pick-Up Trucks	55
Power Actuated Hammers	88
Rack Trucks	85
Roller/Compactor	74
Rubber Tire Loader	85
Saws	76
Service/Utility Fuel Trucks	55
Sledge hammers	85
Sonic Drill Rigs	84
Straight Truck 6 wheel rack/fuel/water	85
Street Cleaner	85
Tie-Back Drill Rig	84
Tower Cranes	83
Tractor Trailers	80
Transformer (1000AMP)	50
Water Pumps	76
Water Trucks	55
Welders (480V)	73

Notes: *NYC Noise Control Code Mandated Levels
Sources: Transit Noise and Vibration Impact Assessment, FTA, May 2006, and FHWA Roadway Construction Noise Model (FHWA RCNM), 2006.

Construction noise generated by the proposed actions is expected to be similar to the noise generated by other construction projects in the city. Increased noise levels resulting from construction activities can be expected to be most significant during the early phases of construction, particularly from demolition and excavation, but would be of relatively short duration.

Temporary increases in noise levels resulting from operation of delivery trucks and other construction vehicles would not be significant. Although small increases in noise levels are expected to be found near a few defined truck routes and in the immediate vicinity of the project site, changes from construction-related vehicles are expected to be minimal.

It is anticipated that noise and vibration levels during construction may be perceptible from nearby sensitive areas. Although these are recognized as temporary impacts, they can be a source

of annoyance. During the construction phase, measures would be used to reduce the construction noise and vibration levels to acceptable limits, as discussed below.

Noise and vibration impacts from construction activities would be most noticeable during the early phases of construction. If necessary, appropriate measures would be taken during excavation to ensure that no structural damage to nearby structures would occur.

Any noise impacts would be temporary and short term. After erection of the superstructure, the majority of the building would be enclosed and noise levels related to on-site construction activities would be significantly reduced.

The proposed development would adhere to all of the requirements of the New York City Building Code, the New York City Noise Control Code, and U.S. Environmental Protection Agency (EPA) noise emission standards. These local and federal requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise emission standards; that construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction materials be handled and transported in such a manner as not to create unnecessary noise. These regulations would be carefully followed. If weekend work is necessary, the proposed development would obtain the necessary permits. In addition, where feasible and practicable, appropriate low-noise emission level equipment and operational procedures would be used. Compliance with noise control measures would be ensured by including them in a site-specific Construction Noise Mitigation Plan, the contract documents as material specification and by directives to the construction contractor. ✷